Insensitive Munitions S&T Roadmap

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U.S. DOD Insensitive Munitions IPT

Established:

June 5, 1997, by the Office of the Under Secretary of Defense (Acquisition, Technology & Logistics)

Member Organizations:

Office of the Secretary of Defense
Office of the Joint Chiefs of Staff
United States Army, Navy, Marine Corps, Air Force, Special Operations Command
Department of Defense Explosives Safety Board
Missile Defense Agency

Participating Organizations:

Department of Energy
Chemical Propulsion Information Agency

Joint Services IM Technical Panel

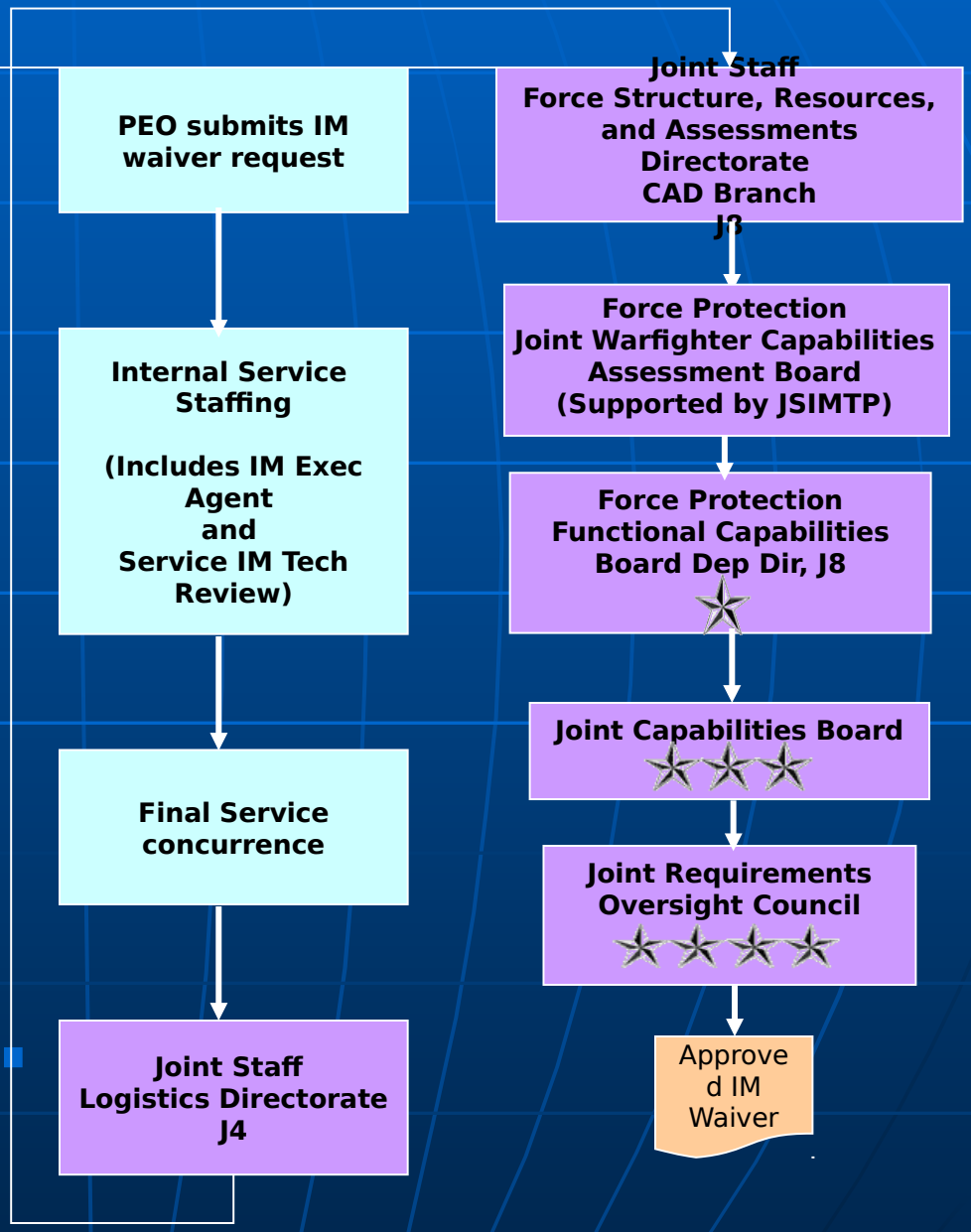
Created by USD(A&T) memorandum on May 4, 1999.

The JSIMTP is an advisory panel which:

- Provides technical advice / recommendations concerning IM technology to program Milestone Decision Authorities, Program Managers, OSD, Joint Staff, and others.
- Reviews all munitions' acquisition programs in identifying IM science and technology opportunities.
- Maintains real-time, top-level management database on munitions and their IM technology status.
- Advises Office of the Secretary of Defense on international IM matters.
- Provides advice / recommendations on integrated IM and Hazard Classification testing.

IM Waiver Process

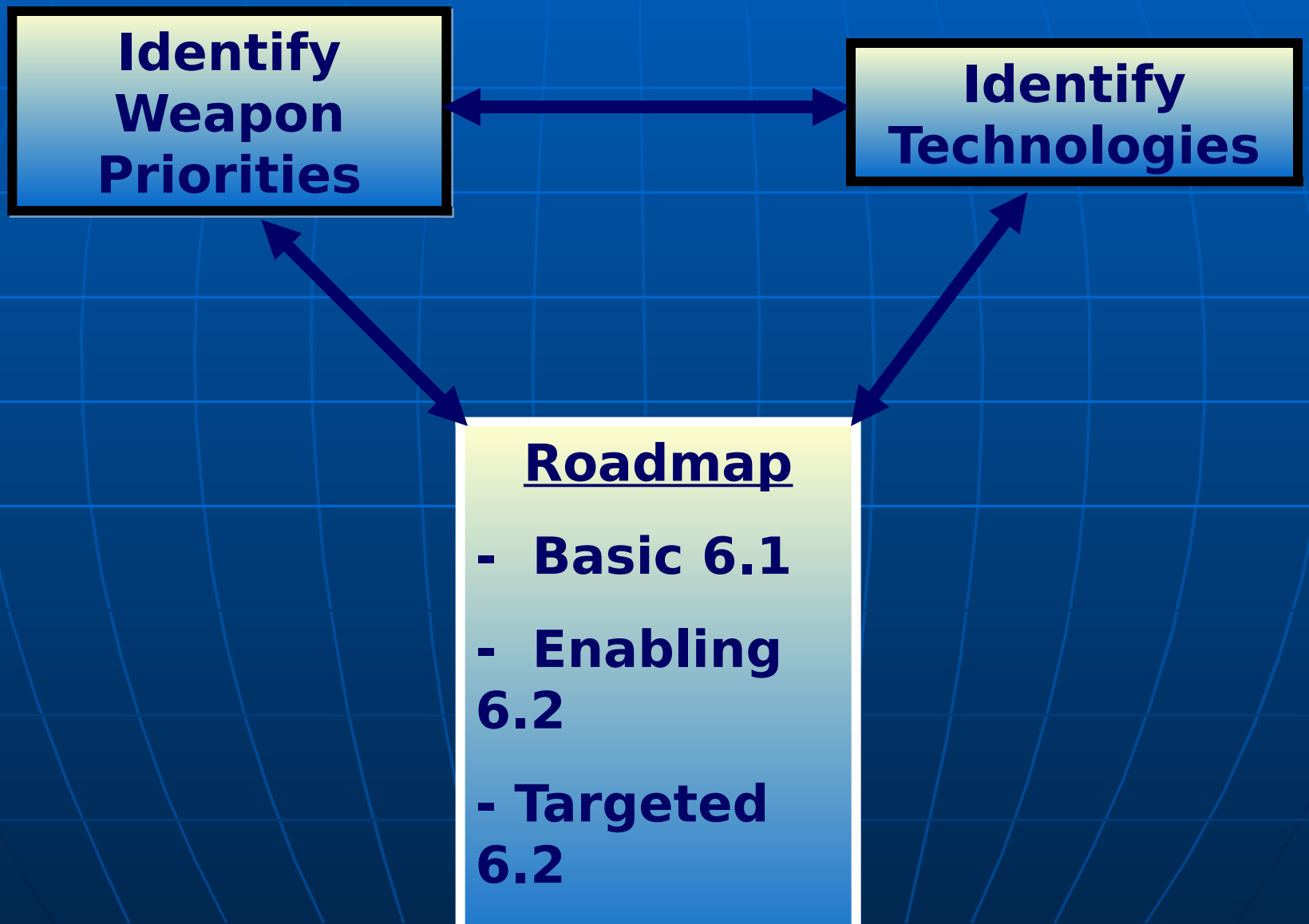
- Waivers required per DoD 5000.1 and CJCSI 3170.01C
- IM waivers historically based on lack of technology
- Waiver requests staffed by all Services
  - Push technology across Service lines
  - Contribute to DoD-wide technology plan
- JROC requiring funded POA&Ms to achieve IM in all waiver requests
  - Technology catalyst


PEO submits IM waiver request
Internal Service Staffing
(Includes IM Exec Agent and Service IM Tech Review)
Final Service concurrence
Joint Staff Logistics Directorate J4
Joint Staff Force Structure, Resources, and Assessments Directorate CAD Branch J8
Force Protection Joint Warfighter Capabilities Assessment Board (Supported by JSIMTP)
Force Protection Functional Capabilities Board Dep Dir, J8
Joint Capabilities Board
Joint Requirements Oversight Council
Approved IM Waiver

IM Trends

- Joint Requirements Oversight Council (JROC) desires new munitions be “born” IM compliant.
- For existing munitions, JROC desires to see some level of IM compliance and emphasis on IM technology insertion…checking Service POM’s
- JROC concerned with lack of DoD and Service wide IM S&T efforts.
- Services working on S&T “Roadmap” to push for additional investment in basic sciences and advancement of emerging technologies.
- Strategic Planning

Roadmap Structure



JSIMTP Technology Prioritization

Legend / CATEGORY	FCO	SCO	BI	FI	SD	USA	USAF	USMC	USN	SOCOM	Score	Joint Priority Top Five
Gun Propellant Large Caliber	I V	IV III	I V	II I	P	1	9	8	5	5	28	1
General Purpose Explosives	I V	V	V	V	F	13	1	15	2	3	34	2
Solid Rocket Propulsion Minimum Smoke	I V	I	I	I	P	3	12	5	6	7	33	3
Metal Accelerating Explosives Castable (Heavy)	V I	IV III	V IV	V IV	P F	5	6	3	8	12	34	4
Advanced Penetrator Explosives	V IV	V IV	V IV	V IV	P F	8	2	16	4	6	36	5
Metal Accelerating Explosives Pressed (Light)	V III	V IV	V IV	IV III	P F	7	3	4	11	10	35	6
Solid Rocket Propulsion High Performance	IV III	III II	IV III	V III	P	2	11	7	3	14	37	7
Metal Accelerating Explosives Pressed (Heavy)	II I	II I	I V	I V	P F	6	3	10	7	14	40	8
Gun Propellant Medium Caliber	I V	I V	V	V	P	4	9	11	15	15	54	9
Metal Accelerating Explosives Extruded	V I	V I	V I	V I	F	11	8	1	12	14	46	10
Underwater Explosives	I V	I V	V	II I	F	18	18	2	1	11	50	11
Metal Accelerating Explosives Castable (Light)	V IV	IV III	V IV	V	P	12	6	6	13	12	49	12
Solid Rocket Propulsion Reduced Smoke	I V	IV III	V IV	I V	P	9	12	9	10	13	53	13
Thermobaric	V	V IV	V	V	P	10	17	14	9	4	54	14
Booster Explosives	V	V				14	3	13	18	8	56	15
Pyrotechnic / Illumination	IV III	IV	V IV	IV	P	15	16	12	14	1	58	16
Propellant Actuated Devices (PADs)	V IV	V	V IV	V	P	17	14	17	16	16	80	17
Cartridge Actuated Devices (CADs)	V	V	V	V	P	16	14	18	17	16	81	18

Top Seven

IM Weapon Priorities

Legend CATEGORY	FCO	SCO	BI	FI	SD	Joint Priority
Gun Propellant Large Caliber	IV	IV / III	IV	III	P	1
General Purpose Explosives	IV	V	V	V	F	2
Solid Rocket Propulsion Minimum Smoke	IV	I	I	I	P / F	3
Metal Accelerating Explosives Castable (Heavy)	V / I	IV / III	V / IV	V / IV	P / F	4
Advanced Penetrator Explosives	V / IV	V / IV	V / IV	V / IV	P / F	5
Metal Accelerating Explosives Pressed (Light)	V / III	V / IV	V / IV	IV / III	P / F	6
Solid Rocket Propulsion High Performance	IV / III	III / II	IV / III	V / III	P	7

Pass	V	Burning Reaction (FCO, SCO, BI, FI) or No Propagation (SD)
Fail	IV	Deflagration or Propulsive Reaction
Fail	III	Explosion
Fail	I / II	Detonation or Partial Detonation (Except SD and SCJ)

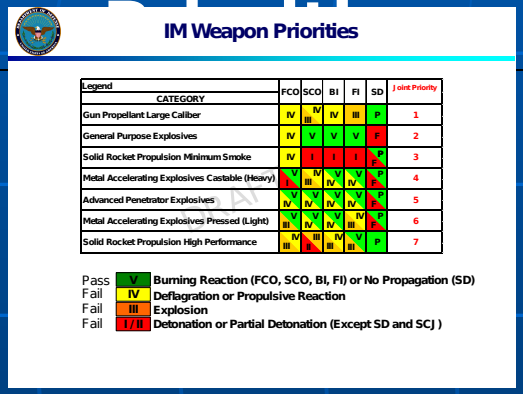
Technologies

Energetic Material	System Design	Packaging
New Crystals/Molecules	Liner Materials	Suppression Systems
Crystal Morphology & Quality	Passive/Active Venting	Passive/Active Venting
Nano-Technology Material	Coating	Storage Configuration
Advanced Binders	Scoring	Packing Container Material
Binary Energetics	Thermal Protection Materia	Thermal Protection Material
Crystal Coating	Barrier/Ballistics Material	Barrier/Ballistics Material
Suppression Agent	Sensors	Modeling & Simulation
Modeling & Simulation	Fuze and Initiators	
	Modeling and Simulation	

1 Gun Propellant Large Caliber	2 General Purpose Explosives	3 Solid Rocket Propulsion Minimum Smoke	4 Metal Accelerating Explosives Castable (Heavy)	5 Advanced Penetrator Explosives	6 Metal Accelerating Explosives Pressed (Light)
7 Solid Rocket Propulsion High Performance	8 Metal Accelerating Explosives Pressed (Heavy)	9 Gun Propellant Medium Caliber	10 Metal Accelerating Explosives Extruded	11 Underwater Explosives	12 Metal Accelerating Explosives Castable (Light)
13 Solid Rocket Propulsion Reduced Smoke	14 Thermobaric	15 Booster Explosives	16 Pyrotechnics/ Illumination	17 Propellant Actuated Devices (PADs)	18 Cartridge Actuated Devices (CADs)

Roadmap Structure

Identify Weapon



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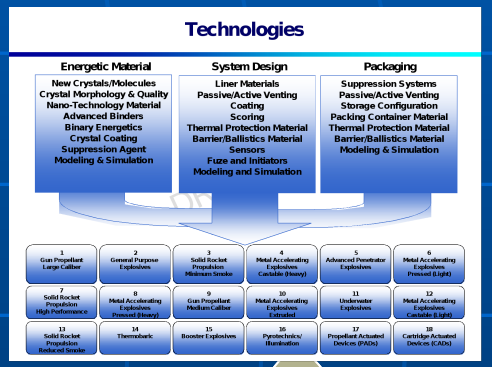
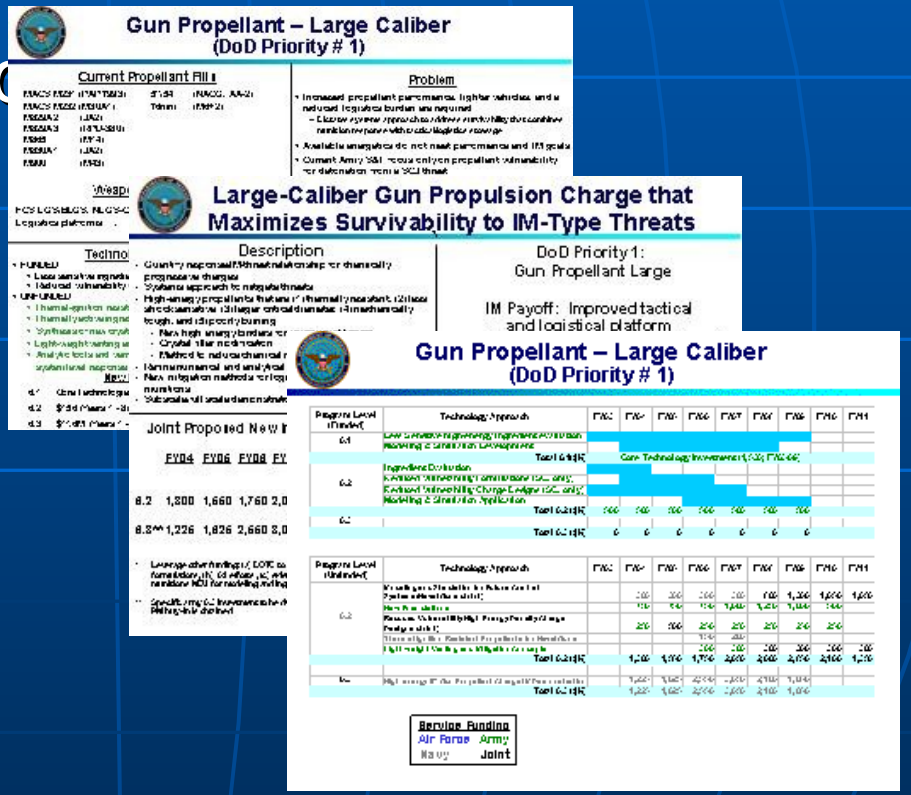


Roadmap

- Basic 6.1
- Enabling 6.2
- Targeted 6.2

Technology Development POA&Ms

- General Category Overview
- Specific tech demo
- Cost/Schedule



Summary

- **DOD IM IPT continues to address IM policy and implementation.**
- **JSIMTP has a two key roles in IM waiver reviews: advice to the PM and recommendations to the Joint Staff.**
- **Roadmap has been briefed to Defense Science & Technology Executives, IM Executive Agents, DARPA and DTRA.**
  - A way forward is under development.